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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte LAWRENCE A. CISCON, EUGENE P. GILES, DAVID E.
EASTERBY, DONNA G. RABALAIS, BERNARD T. BARCIO,
KETIH L. SMITH, and MARY T. FUZAT

Appeal 2015-007287
Application 10/209,531¹
Technology Center 3600

Before, MURRIEL E. CRAWFORD, JOSEPH A. FISCHETTI, and BIBHU
R. MOHANTY, *Administrative Patent Judges*.

FISCHETTI, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants seek our review under 35 U.S.C. § 134 of the Examiner's non-final rejection of claims 1–22. We have jurisdiction under 35 U.S.C. § 6(b).

¹ Appellants identify Trelligence Inc. as the real party in interest. Br. 4.

SUMMARY OF DECISION

We AFFIRM.

THE INVENTION

Appellants claim a method and system/device for leveraging functional knowledge in an engineering project. (Spec. ¶26.).

Claim 1 reproduced below, is representative of the subject matter on appeal.

1. A method of leveraging functional knowledge in an engineering project, comprising:
 - obtaining a first requirement of the engineering project, related to at least one style choice,
 - from a customer, wherein the first requirement defines a first physical object for the engineering project and a first attribute associated with the first physical object;
 - storing the first requirement in an applied functional knowledge (AFK) repository comprising:
 - a functional data framework comprising an entity-relation-constraint data store and a geometric entity model,
 - a domain framework comprising a taxonomy layer comprising an industry constraint and industry information,
 - an output module comprising a tool interface and an interface driver, wherein the interface driver is configured to extract information from the AFK repository and present the information in a standard format to external systems, the at least one style choice made by the customer corresponding to the building, at least one non-structural relationship between a plurality of physical objects used to construct a building, and
 - at least one of a plurality of non-structural constraints corresponding to the plurality of physical objects, wherein one or more of the plurality of

non-structural constraints comprise information about planned customer use of the building;

creating, by a processor, a first entity corresponding to the first physical object; associating the first entity with the first attribute to obtain a first attributed entity; associating the first attributed entity with the first requirement to obtain a first attributed requirement;

obtaining a second requirement of the engineering project, related to the at least one nonstructural relationship between physical objects of the building, from the customer, wherein the second requirement defines a second physical object for the engineering project and a second attribute associated with the second physical object;

creating, by the processor, a second entity corresponding to the second physical object; associating the second entity with the second attribute to obtain a second attributed entity; associating the second attributed entity with the second requirement to obtain a second attributed requirement; obtaining a third requirement of the engineering project from the customer, wherein the third requirement defines at least one of the plurality of non-structural constraints based on at least one of the first attributed requirement and the second attributed requirement;

generating, by the processor and before using a computer aided design (CAD) program, a preliminary design using the first requirement and second requirement that satisfies the third requirement;

modifying the first attributed requirement based on input from the customer;

identifying, as the modification of the first attributed requirement is performed, a violation of at least one of the plurality of non-structural constraints; and

modifying the first attributed requirement based on the violation, wherein the preliminary design is used to generate a detailed design when each of the plurality of non-structural constraints is satisfied, wherein the detailed design is used to perform the engineering project for the customer.

THE REJECTION

The Examiner relies upon the following as evidence of unpatentability:

| | | |
|---------|--------------------|---------------|
| Pray | US 4,885,694 | Dec. 5, 1989 |
| Kemp | US 2001/0047251 A1 | Nov. 29, 2001 |
| Akasaka | US 2007/0250199 A1 | Oct. 25, 2007 |

The following rejections are before us for review.

Claims 1–22 are rejected under 35 U.S.C. § 101.

Claims 1–9, 11–20, and 22 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Akasaka (US 2007/0250199 A1, published Oct. 25, 2007) in view of Kemp (US 2001/0047251 A1, published Nov. 29, 2001).

Claims 10 and 21 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Akasaka, Kemp and in further view of Pray (US 4,885,694 issued Dec. 5, 1989).

ANALYSIS

35 U.S.C. § 103 REJECTION

Each of the independent claims before us, namely, claims 1, 11 and 22 requires, in one form or another,

“at least one of the first attributed requirement and the second attributed requirement; generating, by the processor and before using a

computer aided design (CAD) program, a preliminary design using the first requirement and second requirement that satisfies the third requirement;... .”

The Examiner found that Akasaka discloses the AFK depository citing to:

(Col. 6 - 7 Lines 36 -15; Col. 8 Lines 30 - 60; Col. 9 Lines 17 - 40; Col 9 -10 Lines 50 - 2; Col. 10 -11 Lines 24- 23; Col. 11 -12 Lines 35-41; Figs. 23- 26, 28, 29, 31, 32 wherein the system includes a database of information for assisting a user in the generation of a project, e.g., elevator construction and installation. The database includes information pertaining to, but not limited to, industry standard symbols (CAD symbols) that have a corresponding geometric shape and constraint information so as to allow the system and user to determine whether there will be any issues regarding interference.

(Non-Final Act. 5, emphasis original).

Appellants argue however,

Akasaka is completely silent with regards to generation of a preliminary design *before* a CAD system is used. In fact, as mentioned above, the portion of the requirement of independent claim 1 requiring that the preliminary design be generated before a CAD system is used appears to have been completely ignored by the Examiner in the Action, which is improper. Appellant asserts that Akasaka is largely concerned with using a CAD system to generate elevator designs. The Examiner appears to understand this, as the rejection of claim 1 includes an explanation of how CAD symbols are

manipulated in a database. Contrast this with the claimed invention, in which a preliminary design is generated, at least in part, using information stored in an AFK repository, and which occurs *before* a CAD program is used.

(Appeal Br. 15).

We agree with Appellants. Our review of Akasaka at the sections cited by the Examiner in the Action at page 5, reveals that Akasaka discloses, “The database server **12** is provided with an external storage **9** that stores a drawing database. This drawing database registers a CAD symbol of each product.” Akasaka para. 76. The database which relates to the claimed AFK repository merely registers a CAD symbol of each product whereas the claim requires a first requirement related to at least one style choice be obtained by a customer and stored in the AFK. In Akasaka, the CAD symbols are pre-formed and are not obtained by a customer and are stored regardless of whether each is obtained or not by the customer.

The Examiner also found:

Kemp clearly demonstrates that it is old and well-known in the art to generate a preliminary design by, at least, collecting information pertaining to an engineering project in order to create an initial, i.e. preliminary, design before using a CAD program, wherein the use of the CAD program results in generating the final design, schematics, blueprints, or the like that are used in order to actually build the engineering project. The Examiner asserts that the invention, as claimed, is broad as to the metes and bounds of what the appellant considers to be a "preliminary design" and, consequently, one of

ordinary skill in the art, in the broadest reasonable interpretation, would have found it obvious that the questions that are being provided to the user, sketches, and etc. are equivalent to the claimed "preliminary design" and, as is further demonstrated by **Kemp**, this "preliminary design" serves as the starting points, basis, or the like for generating the more finalized design in CAD which the project will work from.

(Answer 12, emphasis original).

We disagree with the Examiner because while Kemp does disclose generating a preliminary design, the preliminary design is still part of the CAD program. The Examiner does not explain nor is it apparent how one having ordinary skill in the art would know to modify the database server 12 of Akasaka to include inputs for the preliminary design features of Kemp. Accordingly, we will not sustain the rejection of independent claims 1, 11 and 22.

Since claims 2-10, and 12-21, depend from claims 1 and 11, respectively, and since we cannot sustain the rejection of claims 1 and 11, the rejection of claims 2-10, and 12 -21 likewise cannot be sustained.

35 U.S.C. § 101 REJECTION

We will sustain the rejection of claims 1–22 under 35 U.S.C. § 101.

The Supreme Court, in *Alice*, reiterated the two-step framework previously set forth in *Mayo Collaborative Services v. Prometheus Labs.*,

Inc., 132 S. Ct. 1289, 1300 (2012), “for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of these concepts.” *Alice Corp.*, 134 S. Ct. at 2355. The first step in that analysis is to “determine whether the claims at issue are directed to one of those patent-ineligible concepts,” *id.*, e.g., to an abstract idea. If the claims are not directed to an abstract idea, the inquiry ends. Otherwise, the inquiry proceeds to the second step where the elements of the claims are considered “individually and ‘as an ordered combination’” to determine whether there are additional elements that “‘transform the nature of the claim’ into a patent-eligible application.” *Alice Corp.*, 134 S. Ct. at 2355 (quoting *Mayo*, 132 S. Ct. at 1297).

The Court acknowledged in *Mayo*, that “all inventions at some level embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas.” *Mayo*, 132 S. Ct. at 1293. We, therefore, look to whether the claims focus on a specific means or method that improves the relevant technology or are instead directed to a result or effect that itself is the abstract idea and merely invoke generic processes and machinery.

See Enfish, LLC v. Microsoft Corp., 822 F.3d 1327, 1336 (Fed. Cir. 2016).

Applying the framework set forth in *Alice*, and as the first step of that analysis, we find that the claims are directed to the abstract idea of an engineering process solution where parameters are set out by a user and violations thereof are determined as part of the process— a finding that also is fully consistent with the Specification (*see* Spec. ¶ 1 (stating that in the

Background, “engineering process strives to produce a solution that satisfactorily performs the required functions while using a minimum of materials, minimizing costs, and still being aesthetically pleasing”).

Claim 1, for example, recites a method comprising the core steps of:

- (1) obtaining a first requirement of the engineering project, related to at least one style choice, from a customer, wherein the first requirement defines a first physical object for the engineering project and a first attribute associated with the first physical object,
- (2) the at least one style choice made by the customer corresponding to the building, at least one non-structural relationship between a plurality of physical objects used to construct a building, and at least one of a plurality of non-structural constraints corresponding to the plurality of physical objects, wherein one or more of the plurality of non-structural constraints comprise information about planned customer use of the building;
- (3) creating a first entity corresponding to the first physical object; associating the first entity with the first attribute to obtain a first attributed entity; associating the first attributed entity with the first requirement to obtain a first attributed requirement;
- (4) creating a second entity corresponding to the second physical object; associating the second entity with the second attribute to

obtain a second attributed entity; associating the second attributed entity with the second requirement to obtain a second attributed requirement;

(5) obtaining a third requirement of the engineering project from the customer, wherein the third requirement defines at least one of the plurality of non-structural constraints based on at least one of the first attributed requirement and the second attributed requirement;

(6) modifying the first attributed requirement based on input from the customer; identifying, as the modification of the first attributed requirement is performed, a violation of at least one of the plurality of non-structural constraints; and modifying the first attributed requirement based on the violation... .

These are the core steps of the claims and all involve acts that could be performed by a human, i.e., either mentally, or manually using pen and paper, without the use of a computer or any other machine, i.e., determining qualifying items based on a set of criteria. The thought process involved here results in “leveraging functional knowledge in an engineering project.” Specification ¶ 26. This furthers the bidding process for the design. *See* Specification ¶ 6. We find that furthering a bidding process is a fundamental economic practice.

The law is clear that “[a] method that can be performed by human thought alone is merely an abstract idea and is not patent-eligible under

§ 101.” *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1372–73 (Fed. Cir. 2011); *see also Gottschalk v. Benson*, 409 U.S. 63, 67 (1972) (“[p]henomena of nature . . . , mental processes, and abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work.”). Moreover, mental processes remain unpatentable even when automated to reduce the burden on the user of what once could have been done with pen and paper. *CyberSource*, 654 F.3d at 1375 (“That purely mental processes can be unpatentable, even when performed by a computer, was precisely the holding of the Supreme Court in *Gottschalk v. Benson*.”).

Turning to the second step of the *Alice* analysis, because we find that the independent claims are directed to an abstract idea, the claims must include an “inventive concept” in order to be patent-eligible, i.e., there must be an element or combination of elements that is sufficient to ensure that the claim in practice amounts to “significantly more” than the abstract idea itself. Here, claim 1, at best, “adds” only a “functional knowledge repository”, a “processor”, a “module” with a “tool interface and driver” i.e., all generic computer components, which does not satisfy the inventive concept. “[A]fter *Alice*, there can remain no doubt: recitation of generic computer limitations does not make an otherwise ineligible claim patent-eligible. The bare fact that a computer exists in the physical rather than purely conceptual realm is beside the point.” *DDR Holdings, LLC v.*

Hotels.com, L.P., 773 F.3d 1245, 1256 (Fed. Cir. 2014) (internal citations and quotation marks omitted).

Nothing in claims 1, 11 or 22 purports to improve computer functioning or “effect an improvement in any other technology or technical field.” *Alice*, 134 S. Ct. at 2359. Other than connecting the AFK repository (database) to the output module, the output module is merely recited as presenting data in standard format, which format the Specification describes as being unspecified “third party software”. Specification ¶ 68. As the Federal Circuit has made clear, “the basic character of a process claim drawn to an abstract idea is not changed by claiming only its performance by computers, or by claiming the process embodied in program instructions on a computer readable medium.” *See CyberSource*, 654 F.3d at 1375–76 (citing *In re Abele*, 684 F.2d 902 (CCPA 1982)). Because we find that dependent claims 2–10, and 12–21 lack additional elements that would render the claims patent-eligible, we affirm the rejection to these claims as well.

CONCLUSIONS OF LAW

We conclude the Examiner did err in rejecting claims 1-22 under 35 U.S.C. § 103.

We conclude the Examiner did not err in rejecting claims 1-22 under 35 U.S.C. § 101.

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DECISION

The decision of the Examiner to reject claims 1-22 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED